

DOCKET NO.: 01204DIV3

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: :

Tristan BARBEYRON et al. :

SERIAL NO.: None assigned :
(Division of application
Serial No. 09/269,731) :

FILED: Concurrently herewith :

FOR: GLYCOSYL HYDROLASE GENES AND THEIR USE FOR PRODUCING
ENZYMES FOR THE BIO-DEGRADATION OF CARRAGEENANS

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Prior to Examination of this application on the merits, kindly amend the application
as follows.

IN THE SPECIFICATION

Page 1, between lines 2 and 3, insert the following paragraph:

--CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a division of application Ser. No. 09/269,731, filed Apr. 5, 1999,
which is a 371 of PCT/FR97/01768, filed October 6, 1997.--

Page 1, between lines 2 and 3, insert the heading: --BACKGROUND OF THE
INVENTION--.

Page 3, between lines 2 and 3, insert the heading: --SUMMARY OF THE

INVENTION--.

Page 8, between lines 16 and 17, insert the heading: --BRIEF DESCRIPTION OF THE DRAWINGS--;

Page 8, replace the paragraph at line 20 to line 23 with the following paragraph:

--Fig. 1: The maximum similarity alignment, according to the method of Needleman and Wunsch [J. Mol. Biol. 48, 443-453 (1970)], of the amino acid sequence of the iota-carrageenase of *Alteromonas fortis* (SEQ ID NO: 2) (top part) and the iota-carrageenase of *C. drobachiensis* (SEQ ID NO: 4) (bottom part).--

Page 8, replace the paragraph at line 28 to line 31 with the following paragraph:

--Fig. 3: The maximum similarity alignment, according to the method of Needleman and Wunsch, J. Mol. Biol. 48, 443-453 (1970), of the amino acid sequence of the kappa-carrageenase of *Alteromonas carrageenovora* (SEQ ID NO: 6) (top part) and *Cytophaga drobachiensis* (SEQ ID NO: 8) (bottom part).--

IN THE CLAIMS

Please cancel Claims 1-11 without prejudice or disclaimer of the subject matter thereof, and insert the following new claims:

--12. (New) An isolated protein having glycosyl hydrolase activity, said protein being selected from the group consisting of

- (a) a protein comprising an amino acid sequence depicted in SEQ ID NO: 6;
- (a) a protein comprising an amino acid sequence depicted in SEQ ID NO: 8;
- (b) a protein encoded by the nucleotide sequence of SEQ ID NO: 5;

(b) a protein encoded by the nucleotide sequence of SEQ ID NO: 7; and

(c) a protein having a hydrophobic cluster analysis (HCA) score with the kappa-carrageenase of *Alteromonas carrageenovora* which is greater than or equal to 75% over the domain extending between amino acids 117 and 262 of the amino acid sequence of *Alteromonas carrageenovora* that is SEQ ID NO: 6.

13. (New) A protein according to claim 12, wherein the HCA score is greater than or equal to 80%.

14. (New) A protein according to claim 12, wherein the HCA score is greater than or equal to 85%.

15. (New) A protein according to Claim 12, comprising an amino acid sequence depicted in SEQ ID NO: 6, wherein the protein is extracted from *Alteromonas carrageenovora*.

16. (New) A protein according to Claim 12, comprising an amino acid sequence depicted in SEQ ID NO: 8, wherein the protein is extracted from *Cytophaga drobachiensis*.

17. (New) A method of producing kappa-oligocarageenans, comprising

(a) genetically modifying a host cell with a nucleic acid molecule having SEQ ID NO: 5 or SEQ ID NO: 7, or with a vector comprising a nucleic acid molecule having SEQ ID NO: 5 or SEQ ID NO: 7;

(b) culturing the host cell until a protein having glycosyl hydrolase activity is produced;

(c) isolating the protein having glycosyl hydrolase activity;

(d) contacting the isolated protein having glycosyl hydrolase activity with a

carrageenan until kappa-oligocarrageenans are produced; and

(e) recovering the kappa-oligocarrageenans.--

REMARKS

This divisional application is directed to subject matter not present in the allowed claims of application Serial No. 09/269,731. No new matter would be added to this application by entry of the amendment. Upon entry of this amendment, Claims 12-17 will be active in the application.

Favorable action is solicited.

Respectfully submitted,

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Nov 19, 2001

Date

703 412-1155

AMENDMENT TO THE SPECIFICATION

The following paragraph was inserted on page 1, between lines 2 and 3:

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AMENDED CLAIMS

Claims 1-11 were canceled.

Claims 12-17 were added.